A research project to determine teen-age smoking habits, attitudes and influences that may affect them was used to involve high school students. The objective was to give the students a useful learning experience in research and to provide health education. How these objectives were achieved is the core of this paper.

A SURVEY OF THE SMOKING HABITS OF STUDENTS OF NEWTON HIGH SCHOOL—A COOPERATIVE PROJECT

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STUDENTS at Newton High School in Sussex County, N. J., participated during the 1961-1962 school year in a cooperative research project to determine possible influences in teen-age smoking habits and attitudes. The study, endorsed by the Sussex County Medical Society, was co-sponsored by the Newton High School, the Sussex County Chapter of the American Cancer Society, and the New Jersey State Department of Health.

The primary objective of the project was to provide high school students with a meaningful learning experience in research: how to select a problem of interest and concern to them and on which they already had some elementary knowledge; how to collect essential relevant data; how to process these data for analysis; to analyze and interpret the data collected, and to present these in a simple intelligible research report.

The secondary objective was the development of health education guides for application in other subject areas and in other locales.

The total project was a combination of three major challenges:

1. How to combine the interests and activities of a local school, a county voluntary agency, and the State Department of Health.
2. How to use the skills of professional consultants in selected technical and behavioral sciences.
3. How to deal with limitations of time in order to include such a project within the proscribed school schedule.

Technics involved in attaining the objectives and in meeting the challenges are of primary interest here.

This study was done in Newton High School, a four-year comprehensive high school, the largest of six in Sussex, a northwestern New Jersey county, and a rural-urban group different from populations studied in other investigations. Newton is the county seat, as well as the shopping and business center. The nearly 1,100 students are drawn from Newton and from nine sending districts, and amount to approximately one-third of the high school student population in the county. The population of the ten municipalities represented thereby amounts to practically half the county (just over 24,000).

Beginnings can be traced to efforts in the fall of 1960 by the education chairman, Sussex County Chapter, American Cancer Society, and District personnel of the State Health Department to work together on a series of radio

broadcasts geared to education for cancer prevention.

In January, 1961, the State Departments of Health and of Education and the New Jersey Division of the American Cancer Society joined in serious consideration of the problem of cigarette smoking and its reflection in the chronic disease picture. The Sussex County ideas germinated after the impetus and direction given by this conference.

Local Interest Stimulated

Throughout the spring and summer both the county agency and the department ascertained and stimulated local interest, discussed the plans with the county superintendent of schools, and developed the project in terms of local application.

Also, during these months, interest was centered on selecting the "ideal" school in the county for the project. One of the high schools having a well-rounded integrated health educational program was chosen and the plans were discussed with the administrator and faculty. After a month of deliberations, this school though indicating interest, decided that their own immediate problems precluded the possibility of participating in the project.

In the fall, the science teacher of Newton High School, informally advised of the project plans by the County Chapter, alerted the agencies to the needs of a group of his senior students. These college preparatory course students, with interests spread widely through the social, physical, and natural sciences, had completed all of the required courses and needed a project which would widen their knowledge of methodology and at the same time would interrelate the sciences.

The teacher, the education chairman of the County Chapter, and the district health educator of the State Department of Health drew up the tentative guidelines for the project after it had been discussed with the group of eleven students and after they, themselves, indicated interest in the problem of smoking habits, attitudes, and influences. These guidelines were then presented for formal administrative approval of all three agencies and the concurrence of the county superintendent of schools.

Basically, as reported by this group, the Newton project involved the following four steps:

1. Gathering and organizing sufficient information about smoking and lung cancer to develop a testing device or questionnaire.
2. Preparing and pre-testing the questionnaire.
3. Administering the questionnaire, tabulating, and compiling the data.
4. Analyzing the results and drawing conclusions.

Consultants were provided to assist the students in their activities. These included medical personnel from both the Department and the Sussex County Chapter. A health educator particularly skilled in group dynamics assisted with technics of working in committees. The social scientist assisted the students in over-all survey procedures; the anthropologist helped them with the design of questions to elicit meaningful answers and in phrasing to determine attitude; the statistical analyst worked with them in format of the total instrument. All three consultants were skilled in the three facets and duplication for emphasis was planned according to the students' needs.

The content of each consultation was reviewed by the group with the instructor on the days following the visits. This was important to the students because they had anticipated lectures from the consultants and were uncomfortable in seminar-type activities conducted by "unfamiliar" persons. They were more relaxed and communicative in ensuing sessions with the same consultant.

Tape recordings were made of the dis-

cussions by a member of the group. Some of the class became quite proficient at this, and a few of the tapes are now part of the record of the project.

Throughout the project, literature was reviewed by the group. Of particular assistance were the Public Affairs Pamphlet, "Cigarettes and Health," the Horn studies in Oregon, Cameron's "The Truth About Cancer," and the New Jersey Sourcebook for Teachers on this subject.

The work of devising the questionnaire began in the middle of November and continued through the middle of January. The liaison team of class instructor, education chairman of the Sussex County Chapter, and the district health educator provided an "on the spot" resource for assessing and interpreting progress and needs, for dovetailing the contributions and skills of the consultants, and for providing communication channels to the concerned agencies and community resources.

The group used 100 students at a nearby high school in January for pretesting the questionnaire. They delayed until approximately one month later the survey of their own school population.

Since some of the health classes had received information on smoking and lung cancer during the month of January, the group decided that all the students should have the opportunity to receive the same information before proceeding with their own survey. Also, some changes were made in the questions.

Two days before the administration of the questionnaire at Newton High School, the seminar group attended a faculty meeting, explained their objectives, and requested faculty cooperation so that an atmosphere "of an important test" would be established. The questionnaire was administered to the entire school on February 14, 1962, during the first period, so that "the students' minds would be fresh and alert." Instructions were given over the public address system. Seminar members were assigned to each level to distribute and pick up the questionnaires. All the students in school that day, a total of 883, completed the questionnaire.

Original plans for analysis of the data included orientation to both the IBM and the Keysort method. A local concern with IBM equipment had offered to process the data. However, because of time shortages, only one process could be used, and in the interest of the greatest learning experiences and future use of the data, the Keysort method was chosen.

The investigating group transferred all the data from the questionnaires to the Keysort cards. A core committee having received specific instruction in punching cards, tabulating data, and so forth, demonstrated the technics to the rest of the group. Work was done individually and by committees in punching, tabulating, categorizing open-end questions, hand-sorting where indicated, and interpretation of the tabulated data. Students' frustrations with categorizing open-ended questions, even under supervision, led to a recommendation that all such questions be eliminated.

The entire group participated in preparing the reports. Consultants also had the opportunity to review rough drafts and to make suggestions. While preparing the preliminary report, the group met with officials of both agencies and verbally reported some of their experiences as well as preliminary results. The state commissioner of health presented Project Partner Certificates to each member. The president of the County Chapter ACS awarded certificates of appreciation to a spokesman from the class at the annual dinner meeting; and these were later presented to the individual members at the regular school "award" assembly.

The final report, polished by selected members of the group, with the aid of

the teacher, was finished during the last week of the school term. Abstracts of findings were reported to the entire school through the school paper. The investigating group received their own complete copies with their diplomas on the evening they graduated.

Health Education Projects

The implications of projects such as this one for health education in high schools are many and varied. The findings of the survey itself and the impact of these findings on student behavior is revealed somewhat in this excerpt from the report of the investigating group:

"It would appear that if smoking were to be decided upon its own merits, it would be adopted by few. A fairly high percentage of those who have tried it and stopped have done so because they 'didn't like it.' Parental disapproval was the second largest reason for not smoking. Concern over health and expense were next. Add to these facts the 24-35% of the students who say they are trying to stop smoking, and who give these same reasons, it would appear that the problem is not unsolvable."[1]

Although the details of the survey findings will be reported elsewhere, the scope of the study is perhaps revealed by the fact that 15 of the 35 questions asked were specific in eliciting reasons and influences for smoking or for not smoking. Also, there was some corroboration and some divergence from data collected through the Portland (Oregon)[2] and Newton (Massachusetts)[3] studies.

Survey's Conclusion

The following are the conclusions drawn from the survey of this high school population:

a. There was no doubt about the correlation between height of aspiration of the student as indicated by choice of course of study, and the amount of smoking—the college preparatory students smoked the least.

b. There was no doubt about the connection between smoking and the desire to feel adult.

c. There was no doubt about the connection between smoking and rebellion—11 per cent admitted it, and it was implied by many others.

d. One out of four students at Newton High School smoke; a higher percentage of the smokers come from the sending districts than from the town of Newton.

e. The number of girl smokers in each class rose steadily from freshman through junior year, and then dropped sharply in the senior year, while the number of boy smokers continued to rise throughout the senior year.

f. The greatest number of young smokers start to smoke between the fifth and the tenth grades. Boys seem to try out smoking a little earlier than girls. Eighth grade is the peak year for "starts" for boys, and ninth grade for girls. However, the number of "starts" is significant as early as the third grade.

g. Boys are only slightly heavier smokers than girls. Two per cent of the boys smoke more than a pack a day, and only one per cent of the girls smoke a pack or more a day.

h. Participation in activities seemed to show little effect upon smoking. For boys the same ratio of smokers exists even in sports. However, 5 per cent of the boys who had given up smoking gave sports as the reason.

i. Moderate parental smoking seemed to influence the children most, although heavy parental smoking had more effect upon girls, especially when it was done by the girls' mothers. In every bracket a higher percentage of children than parents smoked.

j. The effect of the peer group appears to be very strong since more smokers and nonsmokers were of the same category than the opposite among their friends. However, the smokers do not seem to realize its effect.

k. Twenty-four per cent of boys and 35 per cent of girl smokers are trying to stop—mostly for health reasons. Other reasons, much less important numerically, were expense, influence of others, and parental influence. Eighty-two per cent felt that they could stop if they wanted to—18 per cent felt that they could not.

l. School regulations on smoking serve to measurably cut down the total volume of smoking by both boys and girls.

Further analyses and interpretation of data now being made indicate that some specific determinants may be forthcoming from the Newton, N. J., study. The fact that realistic and perhaps new

data would result from the study was also a factor in the success of the project and incidentally, but of no less importance, affected the caliber of the work done by the students.

The group did not have prior experience in working with consultants. Their experiences with the consultants on this project led them to state that these experts were "important and helpful in the preparation of the questionnaire," "a great deal of help especially in organizing the data," and "of help in many different areas." These remarks serve to indicate the important bearing that the consultant skills had on the health education aspects of the study. It is also important to note that the great timeliness of the topic and its interest to both students as well as school, community, and health department provided the health consultants with some clues to better health education for this age group. Indeed, the special contributions of Dr. Deschin, Mrs. Lacey, and Dr. Wellin were invaluable and are gratefully acknowledged.

In their report, the investigating group listed eight suggestions for refining methodology and at least eleven recommendations for further study or follow-up action either at their own high school or elsewhere. Also interesting to note is that at the end of the project they indicated the need for "built-in follow-up procedures": "Juniors should be in the group so they would know (about the study) when the seniors were gone."

The class instructor noted: "I believe it may be some time before the Senior Science Seminar students fully appreciate how much they learned from the experiences with the Smoking Habits Survey. By the time they had finished the study, many terms and procedures had become so routine that it appeared to them that they had always known them. . . . The concept of how even a complete study opens up more questions than it answers was new to them." These are the words of Benton Cummings, science instructor, without whose cooperation and participation, and that of Newton High School, this project could not have continued.

There is no doubt that the project undertaken by the students, the core team from the local school, county agency, and state government, as well as the consultants, was an ambitious one. It was carried out on school time, under the supervision of the science instructor. Students carried through these activities on a part-time basis—approximately three hours per week for seven and a half months. Time factors and the host of other commitments within the school program preclude the advisability of doing a study of this scope on this basis. Professional personnel experienced in survey work, experienced in working with consultants, and in utilizing community resources would have found this difficult. The school, the consultants, and the invaluable assistance and support of our State Health Commissioner, Dr. Roscoe P. Kandle, and the staff of the State Health Department made this possible.

In spite of the disruption the project must have caused in the school routine, further plans have been made by the school for working together with the agencies on follow-up activities. The school is also interested in utilizing the technics employed in this project in other subject areas—especially with groups of the more gifted students.

In retrospect, perhaps one of the most important factors of the entire project was the interest and support of all of those involved and the maintenance of this interest and support derived and continued through the mutual relationships developed.

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Symposium of Viruses and Cancer

Duke University will be host to an international symposium, March 31-April 3. Nearly 100 outstanding researchers in the field of avian tumor virus will gather to discuss the latest developments in a field which is considered by some to offer one of the most promising experimental methods for basic research as to the link between viruses and cancer.

Chairman of the international symposium planning committee is Dr. Joseph W. Beard, head of Duke Medical Center's virus-cancer laboratory. Dr. Beard and his colleagues have been working on avian myeloblastosis, a disease of chickens, which resembles leukemia in human beings, in an attempt to learn more about cancer-inducing viruses.